

ASTHMA: THE BACH WAY

Allergy & Asthma

Outline

1. Review latest asthma guidelines
2. Review HEDIS measures
3. Practical difficulties
4. Recommendations for providers

Asthma guidelines

- Issued by the National Asthma Education and Prevention Program (NAEPP)
 - EPR-1 – 1997
 - EPR-2 – 2002
 - EPR-3 – 2007
- www.nhlbi.nih.gov/guidelines/asthma/asthgdl_n.htm
- Similar guidelines issued by GINA

New guideline changes

GUIDELINE S	EPR-2	EPR-3
SEVERITY	Mild intermittent	Intermittent
	Mild persistent	Mild persistent
	Moderate persistent	Moderate persistent
	Severe persistent	Severe persistent
AGE GROUPS	2	3
TREATMENT	4	6

NAEPP Goals of Asthma Therapy*

- Reduce, eliminate day and night symptoms
- Reduce, eliminate exacerbations
- No limitations on activity
- No effect on school or work
- Maintain (near) normal pulmonary function
- Minimize use of short-acting β_2 -agonists (SABAs)
- Optimal pharmacotherapy with minimal or no adverse effects

*Adapted from National Asthma Education and Prevention Program Guidelines, 2007.

Goals of asthma therapy*

Divided into 2 domains:

1. Reduction in impairment
2. Reduction of risk

*Adapted from National Asthma Education and Prevention Program
Guidelines 2007

Reduce impairment

- Impairment refers to intensity and frequency of symptoms and degree to which they limit the patient
- Specific goals:
 - Freedom from frequent or troublesome symptoms
 - Need ≤ 2 times per week of inhaled SABAs
 - Optimization of lung function
 - Maintenance of normal daily activities
 - Satisfaction with asthma care on part of patients

Reduce risk

- Risk encompasses the various adverse outcomes associated with asthma and its treatment:
 - Exacerbations
 - Suboptimal lung development in children
 - Loss of lung function over time in adults
 - Adverse effects from asthma medications
- Specific goals:
 - Prevention of recurrent exacerbations and need for ED or hospital care
 - Prevention of reduced lung growth or loss of function
 - Optimization of pharmacotherapy with minimal adverse effects

Components of asthma management

1. Routine monitoring of symptoms and lung function
2. Patient education to create partnership.
3. Controlling environmental triggers and co-morbid conditions
4. Pharmacologic therapy

Monitoring patients

- Symptom assessment
 - Impairment
 - Risk
- Pulmonary function
 - PEFR (home)
 - Spirometry (office)
 - ? Sputum eosinophils; exhaled nitric oxide

Educating patients

- Direct one-on-one by primary clinician
- Education found to
 - Decrease hospitalizations
 - Improve daily function
 - Improve patient satisfaction
- Annual asthma action plan
 - Based on PEF or symptoms
 - Specific directions for daily management and adjusting medications in case of change

Controlling triggers and contributing conditions

- Unavoidable: URIs; exercise; hormonal fluctuations; emotional responses
- Treatable: Inhaled allergens
- Respiratory irritants
- Smoking cessation
- Co-morbid conditions:
 - Adults: COPD, ABPA, GERD, obesity, OSA, rhinitis/sinusitis, VCD, depression/stress.
 - Children: RSV, foreign body aspiration, BPD, CF, obesity.
- Medications: Beta-blockers, ASA, NSAIDs
- Influenza
- Dietary sulfites

Pharmacotherapy

	CLASS	GENERIC NAME
CONTROLLER S	Corticosteroid	• Systemic (prednisone, prednisolone, others) • Inhaled (beclomethasone, budesonide, flunisolide, fluticasone, mometasone, triamcinolone)
	Mast cell stabilizer	Cromolyn sodium, nedocromil
	Immunomodulator	Omalizumab
	Leukotriene antagonist	Montelukast, zafirlukast
	LABA	Salmeterol, formoterol, levalbuterol, sustained-release albuterol
	Methylxanthine	Theophylline
QUICK- RELIEVERS	Anticholinergic	Ipratropium
	SABA	Albuterol, levalbuterol, bitolterol, pirbuterol, terbutaline
	Systemic corticosteroid	Prednisone, prednisolone, methylprednisolone

ICSs

MEDICATION	GENERIC	DOSAGE	COMMENTS
Aerobid, Aerobid-M	Flunisolide 250 mcg	500 – 1000 mcg BID	≥ 6 y
Asmanex Twisthaler	Mometasone 220 mcg	220 - 880 mcg QD	≥ 6 y QHS dosing
Azmacort	75 mcg	300 – 600 mcg BID	≥ 6 y
Flovent HFA	Fluticasone 44, 110, 220 mcg	88 – 880 mcg BID	≥ 4 y
Pulmicort Flexhaler, Respules	Budesonide 90, 180 mcg, 0.25-1 mg/2mL	180 – 720 mcg BID	≥ 6 y Preg Cat B ≥ 6 m for Respules

LABAs

MEDICATION	GENERIC	DOSAGE	COMMENTS
Foradil Aerolizer	Formoterol 12 mcg	12 mcg Q12	≥ 5 y
Serevent Diskus	Salmeterol xinafoate 50 mcg	50 mcg Q12	≥ 4 y
Brovana nebulized solution	Arformoterol 15 mcg/2mL	15 mcg BID	≥ 18 y

ICS & LABA combinations

MEDICATION	GENERIC	DOSAGE	COMMENTS
Advair Diskus 100/50, 250/50, 500/50 Advair HFA 45/21, 115/21, 230/21	Fluticasone & salmeterol	2 inh BID	≥ 4 y COPD (250/50)
Symbicort 160/4.5 80/4.5	Budesonide & formoterol	2 inh BID	≥ 4 y COPD

NAEPP Asthma Guidelines: Classification of Severity

Components of Severity		Classification of Asthma Severity ≥12 years of age			
		Intermittent	Persistent		
			Mild	Moderate	Severe
Impairment Normal FEV ₁ /FVC: 8–19 yr 85% 20–39 yr 80% 40–59 yr 75% 60–80 yr 70%	Symptoms	≤2 days/week	>2 days/week but not daily	Daily	Throughout the day
	Nighttime awakenings	≤2x/month	3–4x/month	>1x/week but not nightly	Often 7x/week
	Short-acting beta ₂ -agonist use for symptom control (not prevention of EIB)	≤2 days/week	>2 days/week but not daily, and not more than 1x on any day	Daily	Several times per day
	Interference with normal activity	None	Minor limitation	Some limitation	Extremely limited
	Lung function	• Normal FEV₁ between exacerbations • FEV₁ >80% predicted • FEV₁/FVC normal	• FEV₁ >80% predicted • FEV₁/FVC normal	• FEV₁ >60% but <80% predicted • FEV₁/FVC reduced 5%	• FEV₁ <60% predicted • FEV₁/FVC reduced >5%
Risk	Exacerbations requiring oral systemic corticosteroids	0–1/year (see note)	≥2/year (see note)		
		Consider severity and interval since last exacerbation. Frequency and severity may fluctuate over time for patients in any severity category. Relative annual risk of exacerbations may be related to FEV ₁ .			
Recommended Step for Initiating Treatment (See figure 4–5 for treatment steps.)		Step 1	Step 2	Step 3	Step 4 or 5
		and consider short course of oral systemic corticosteroids			
		In 2–6 weeks, evaluate level of asthma control that is achieved and adjust therapy accordingly.			

NAEPP Asthma Guidelines: Components of Control

FIGURE 4–7. ASSESSING ASTHMA CONTROL AND ADJUSTING THERAPY IN YOUTHS ≥12 YEARS OF AGE AND ADULTS

Components of Control		Classification of Asthma Control (≥12 years of age)		
		Well Controlled	Not Well Controlled	Very Poorly Controlled
Impairment	Symptoms	≤2 days/week	>2 days/week	Throughout the day
	Nighttime awakenings	≤2x/month	1–3x/week	≥4x/week
	Interference with normal activity	None	Some limitation	Extremely limited
	Short-acting beta ₂ -agonist use for symptom control (not prevention of EIB)	≤2 days/week	>2 days/week	Several times per day
	FEV ₁ or peak flow	>80% predicted/ personal best	60–80% predicted/ personal best	<60% predicted/ personal best
	Validated questionnaires ATAQ ACQ ACT	0 ≤0.75* ≥20	1–2 ≥1.5 16–19	3–4 N/A ≤15
Risk	Exacerbations requiring oral systemic corticosteroids	0–1/year	≥2/year (see note)	
		Consider severity and interval since last exacerbation		
	Progressive loss of lung function	Evaluation requires long-term followup care		
	Treatment-related adverse effects	Medication side effects can vary in intensity from none to very troublesome and worrisome. The level of intensity does not correlate to specific levels of control but should be considered in the overall assessment of risk.		
Recommended Action for Treatment (see figure 4–5 for treatment steps)		• Maintain current step. • Regular followups every 1–6 months to maintain control. • Consider step down if well controlled for at least 3 months.	• Step up 1 step and Reevaluate in 2–6 weeks. • For side effects, consider alternative treatment options.	• Consider short course of oral systemic corticosteroids, • Step up 1–2 steps, and • Reevaluate in 2 weeks. • For side effects, consider alternative treatment options.

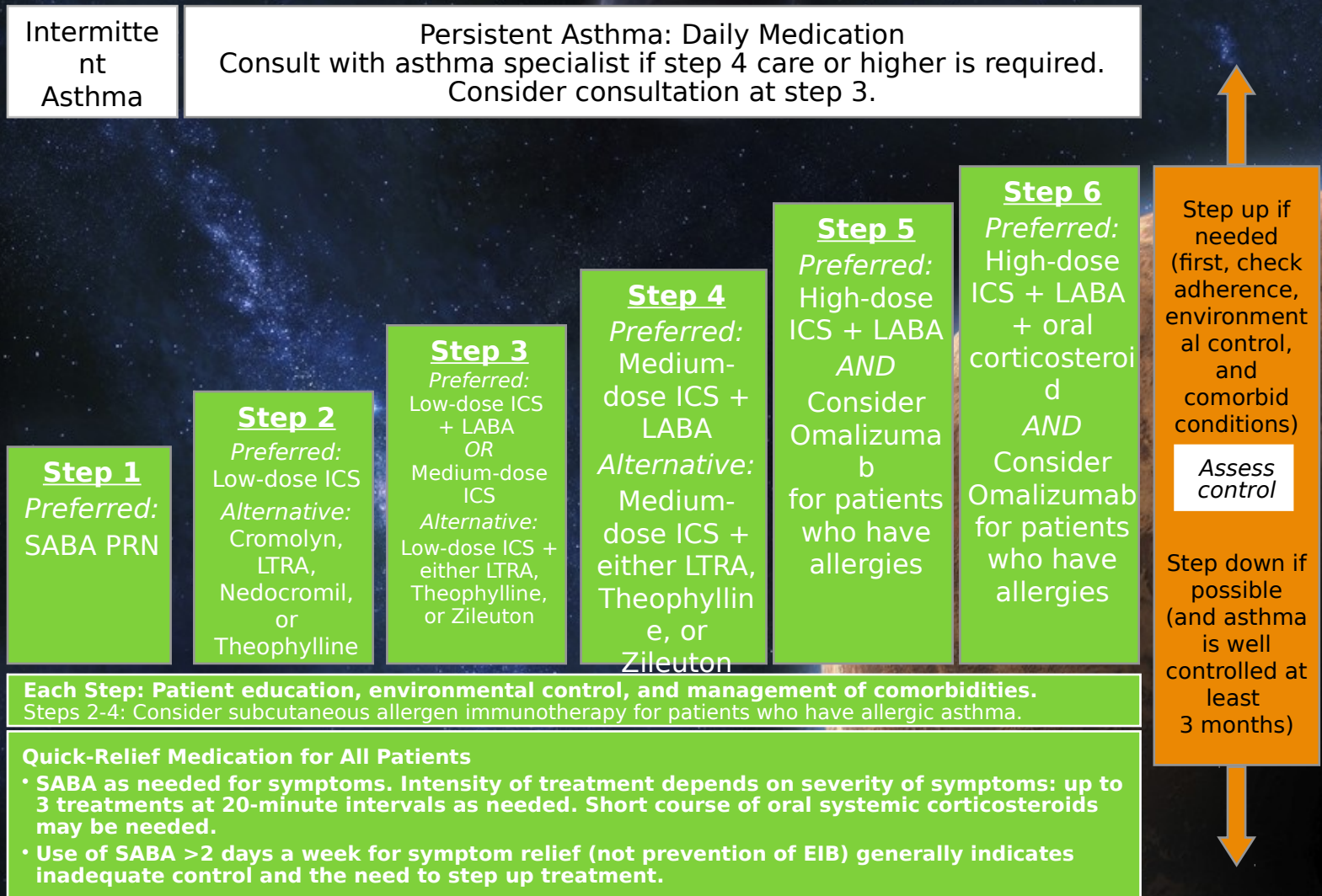
“The goal of asthma therapy is to maintain control of asthma with the least amount of medication.”

Adapted from National Asthma Education and Prevention Program Guidelines.

Classification easy reminder

SEVERITY	DAYTIME	NOCTURNAL (rules of 2s & 3s)
Intermittent	“Week”	2x/Month
Mild Persistent	“QOD”	3x/Month
Moderate Persistent	“QD”	2x/Week
Severe Persistent	“Continuous”	3x/Week

NAEPP Asthma Guidelines: Stepwise Approach to Therapy*



National Asthma Education and Prevention Program Guidelines. 2007. *In patients ≥ 12 years of age.

Summary

- **Variability** of asthma: severity should be assessed prior to initiating treatment
- Asthma **control**: focus on achieving and maintaining control through stepwise approach
 - ICSs part of preferred treatment across all age groups
 - When stepping up, combination therapy is recommended and LABAs are preferred agents to combine with ICS in patients ≥ 12 y
- For both assessing control and determining severity, 3 age groups are established and domains of current impairment and future risk should be

HEDIS

- Healthcare Effectiveness Data and Information Set
- A tool created by National Committee for Quality Assurance (NCQA) to collect data about quality of care and services of health plans for consumers to comparison shop
- Asthma - % MTF enrollees, age 5-56, with persistent asthma who are prescribed controller medications

MHSPHP

- Military Health System Population Health Portal is a centralized, secure, web-based population health management system used by the 3 major military branches
- Transforms DoD and Network healthcare data into actionable information
- Data pulls used are based on HEDIS methodologies

Data sources

- AHLTA
- CHCS
- DEERS
- M2 (SADR, SIDR, PDTS, Network)

Persistent asthma

1. ≥ 4 outpatient asthma visits with asthma as one of the listed diagnoses and ≥ 2 asthma medication dispensing events
2. ≥ 1 acute inpatient discharge with asthma as principal diagnosis
3. ≥ 1 ED visit with asthma as principal diagnosis
4. ≥ 4 asthma medication dispensing events

Asthma medications

PREFERRED ASTHMA THERAPY

Antiasthmatic combinations	Dyphylline-guaifenesin Guaifenesin-theophylline	Potassium iodide-theophylline
Inhaled steroid combinations	Budesonide-formoterol	Fluticasone-salmeterol
Inhaled corticosteroids	Beclomethasone Budesonide Flunisolide	Fluticasone CFC free Mometasone Triamcinolone
Leukotriene modifiers	Montelukast Zafirlukast	Zileuton
Mast cell stabilizers	Cromolyn	Nedocromil
Methylxanthines	Aminophylline Dyphylline	Oxtriphylline Theophylline

ADDITIONAL ASTHMA MEDICATIONS (Do not meet numerator criteria)

LABA	Aformoterol Formoterol	Salmeterol
SABA	Albuterol Bitolterol	Levalbuterol Pirbuterol

2007 HEDIS Benchmarks

Measure	Green	Amber	Red
Breast Cancer Screening (ages 52-69)	80.1	80.0--- 71.9	≤ 71.8
Cervical Cancer Screening (ages 24-64)	87.1	87.0--- 81.7	≤ 81.6
Colorectal Screening (ages 51-80)	65.1	65.0--- 54.7	≤ 54.6
Diabetic A1C Drawn (ages 18-75)	92.9	92.8--- 88.3	≤ 88.2
Diabetes Control <9 (ages 18-75)	81.3	81.2--- 70.7	≤ 70.6
Diabetes LDL <100 (ages 18-75)	51.3	51.2--- 42.9	≤ 42.8
Pneumovax (ages 65+)	82.0	81.9--- 73.1	≤ 73.0

Practical problems

1. Only diagnosis of asthma is from ED
2. Diagnosis of asthma made after 2 visits for respiratory symptoms without work-up
3. Patient reports history of asthma but no meds in over 3 years
4. Patient complained of SOB after running 25 laps, diagnosed with exercise-induced asthma without work-up
5. Patient diagnosed with seasonal allergic rhinitis and prescribed Singulair
6. Patients diagnosed with mild persistent asthma and prescribed only albuterol mdi
7. Diagnosis of bronchial asthma
8. Diagnosis of “touch of asthma” each spring
9. Diagnosis of status asthmaticus in the ED and discharged home after 3 nebulized treatments

Recommendations

- Adhere to EPR-3 recommendations
- Follow up with persistent asthmatics every 3-6 months
- Ensure proper controller medications
- Step up or step down as indicated
- Annual spirometry on medications
- Annual review of asthma action plan